

Bellwork: 4/25/13

Simplify the following radical expressions:

1) $-4\sqrt{45x^7y^{18}z}$

$-12xy^3\sqrt{5xz}$

2) $5\sqrt[3]{56x^9y^{12}z^{34}}$

$-10x^3y^4z^{\frac{34}{3}}\sqrt[3]{7z}$

Algebra II
Sect. 6-3

$2i + 3i = 5i$
 $2 + 3i = 2 + 3i$

Obj: To add and subtract radical expressions

Sum or Difference of Radicals:

you can only
add/subtract
if the #
under the
root is
the same!

yes

Done ☺

Combine like
terms
if possible

no

1. Simplify the radicand
2. Combine like terms

$2\sqrt{2} + 3\sqrt{2} = 5\sqrt{2}$
 $2 + 3\sqrt{2} = 2 + 3\sqrt{2}$
 $2\sqrt{2} + 3\sqrt{3} = 2\sqrt{2} + 3\sqrt{3}$

1.) $(1 + \sqrt{3}) + (2 - 4\sqrt{3})$

$1 + 2 \quad \sqrt{3} + -4\sqrt{3}$
 $3 - 3\sqrt{3}$

2.) $(3 - 7\sqrt{5}) - (2 + 3\sqrt{5})$

$3 - 2 \quad -7\sqrt{5} - 3\sqrt{5}$
 $1 - 10\sqrt{5}$

$$3.) (6 + \sqrt{12}) + (-7 + \sqrt{75})$$

$$\begin{array}{r} \begin{array}{c} 4 \quad 3 \\ \swarrow \quad \searrow \\ 2 \quad 2 \end{array} \quad \begin{array}{c} 25 \quad 3 \\ \swarrow \quad \searrow \\ 5 \quad 5 \end{array} \\ (6 + 2\sqrt{3}) + (-7 + 5\sqrt{3}) \\ 6 + -7 \quad 2\sqrt{3} + 5\sqrt{3} \\ \boxed{-1 + 7\sqrt{3}} \end{array}$$

$$4.) (-5 - \sqrt{18}) - (6 + \sqrt{50})$$

$$\begin{array}{r} \begin{array}{c} 2 \quad 9 \\ \swarrow \quad \searrow \\ 3 \quad 3 \end{array} \quad \begin{array}{c} 25 \quad 2 \\ \swarrow \quad \searrow \\ 5 \quad 5 \end{array} \\ (-5 - 3\sqrt{2}) - (6 + 5\sqrt{2}) \\ -5 - 6 \quad -3\sqrt{2} - 5\sqrt{2} \\ \boxed{-11 - 8\sqrt{2}} \end{array}$$

$$5.) (3 - \sqrt{24}) + (8 - \sqrt{96})$$

$$\begin{array}{r} \begin{array}{c} 4 \quad 6 \\ \swarrow \quad \searrow \\ 2 \quad 2 \end{array} \quad \begin{array}{c} 16 \quad 6 \\ \swarrow \quad \searrow \\ 4 \quad 4 \end{array} \\ (3 - 2\sqrt{6}) + (8 - 4\sqrt{6}) \\ 3 + 8 \quad -2\sqrt{6} + -4\sqrt{6} \\ \boxed{11 - 6\sqrt{6}} \end{array}$$

$$6.) (4 + \sqrt{27}) - (-15 + \sqrt{48})$$

$$\begin{array}{r} \begin{array}{c} 9 \quad 3 \\ \swarrow \quad \searrow \\ 3 \quad 3 \end{array} \quad \begin{array}{c} 16 \quad 3 \\ \swarrow \quad \searrow \\ 4 \quad 4 \end{array} \\ (4 + 3\sqrt{3}) - (-15 + 4\sqrt{3}) \\ 4 + +15 \quad 3\sqrt{3} - 4\sqrt{3} \\ \boxed{19 - \sqrt{3}} \end{array}$$

Homework:

yellow packet \rightarrow pages 11 & 12

evens - all problems

